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ABSTRACT

In this study, the task was to analyze the separate effects of contingent reinforcement (money) and monitoring (counting) on the frequency of responses indicative of anxiety. Observed (physiological) and introspective (covert statements about experiencing anxiety) were used to determine the effects of reinforcement and monitoring on anxiety prone persons. The design contains five separate week-long phases, for each S, with each phase having pre- and post-physiological measures. There were two groups: a high-anxious control group, and another group of high-anxious Ss. The five phases of the experimental group were as follows: (1) monitoring anxious thoughts; (2) contingent reinforcement for a decrement in the presence of anxious thoughts while monitoring absence of anxious thoughts; (3) a week of no monitoring was followed by non-contingent reinforcement; and (4) a week in which the Ss acted as their own controls. While the outcomes remain highly tentative in nature, the study is supportive of the hypothesis that modifying cognitions (i.e., anxious thoughts) in the form of self-verbalizations can result in changes in autonomic or physiological measures. (Author)

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# The Effects of Anxious Thoughts on the Physiological Measures of High-Anxious Ss

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# The Effects of Anxious Thoughts on the Physiological Measures of High-Anxious Ss

## Introduction

In a previous study, the task was to analyze the effects of contingent reinforcement on the frequency of responses indicative of anxiety. Observed (physiological) and introceptive (covert statements about experiencing anxiety) were used to determine the effects of reinforcement on anxiety prone persons. Although the results, determined by t-tests, indicated significant differences in physiological measures and thought behavior between the experimental and control group, some interaction with thought monitoring was suspected.

## Statement of the Problem

The task in this study was to determine the separate effects, if any, of five independent variables on physiological indices assumed to be associated with the experience of anxiety. Of particular interest were the effects on physiological responses of (a) the monitoring activity itself and (b) contingent money for a decrement in anxious thoughts.

## Subjects Used

Each group, experimental and control, contained five randomly selected male and female Ss between the ages of sixteen and fifty-five years who had scored over 23 on the Taylor Manifest Anxiety Scale (Taylor, 1953). Geographically the Ss came from the Dallas-Fort Worth Metroplex area, and held widely discrepant occupation .

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## Method

The experimental procedure was designed in five separate week long phases, each S in each group, having heart rate and blood pressure measured pre and post for each week phase. The five phases for the experimental group were as follows: (1) Monitoring of anxious thoughts, (2) Contingent

reinforcement for a decrement in the presence of anxious thoughts, (3) Contingent reinforcement for a decrement in the presence of anxious thoughts, (4) A week of no monitoring followed by noncontingent reinforcement and (5) A week in which the Ss acted as his/her own control.

During each of the pre and post physiological measures, the Ss heart rate was taken for thirty minutes following a fifteen minute rest period. The mean heart rate, in beats per minute, was determined by averaging the beats that occurred during the last fifteen minutes of the thirty-minute interval. The Ss blood pressure readings were the three readings taken during the last fifteen minutes of the thirty-minute interval although a total of six readings were taken over the entire thirty-minute period.

Data Collection.--The Ss were instructed in the use of the "blipper" (an automatic tone device) and wrist counter. The subject was told that a thought was to be counted as an anxious thought whenever the subject was aware that physiological stimulation, such as increased heart rate or blood pressure, was occurring within the body. The covert statement which reflected the physiological stimulation would be such words as "I feel anxious, worried, nervous, etc." or "I am anxious". (The reason the interval monitoring is referred to as anxious thought is that one probably isn't aware of one's own internal state unless that condition is detected or labelled by thinking about it, i.e., words- thoughts about experiencing physiological anxiety- are crucial to the Ss' consciousness of the event.)

Monitoring.--The Ss in the experimental group carried a "blipper" with them at all times during their waking hours. This automatic tone devise was pre-set to emit a tone at approximately four minute intervals. Simultaneously with the tone, the subject monitored the presence or absence of physiological anxiety in weeks 1 and 2. In week 3, the Ss counted

not the presence of anxiety, but it's absence. In weeks 4 and 5 no monitoring occurred.

Recording.--Each experimental group subject had two counters. The subject recorded on one counter each occasion in which he heard the blipper tone. He or she would immediately record on the other counter, the presence of an anxious thought if, upon hearing the tone, physiological anxiety was being experienced. (In week 3 the absence of anxiety was recorded, rather than its presence.)

The control phase for the experimental Ss occurred in week five with nothing occurring except the week's pre and post measures of heart rate and blood pressure. The TMAS was administered once again at the end of week five. In the control group the five week period contained only pre and post physiological measures for each week and none of the activities experienced by the experimental group.

In summary the experimental group experienced five independent variables in each of five weeks: The independent variable for week one was monitoring of anxious thoughts only, week two; monitoring and contingent reinforcement, week three; monitoring and contingent reinforcement for absence of anxious detections, week four; non-contingent money only and week five, enabled the experimental Ss to function as their own individual control.

## Results

The results of the study indicated that the phase during which the experimental Ss had the greatest decrement in physiological responding was the first phase, i.e., the monitoring only phase. The only other phase to show some decrement in physiological responding was the contingent reinforcement phase. The phase which facilitated the greatest decrease

in anxious thoughts was the phase for contingent reinforcement for a decrement in the presence of anxious thoughts. This data inferred that monitoring can slightly elevate thoughts but not to the degree that would effect the increasing of blood pressure and heart rate. This elevated awareness of the frequency of the thoughts may have been used as feedback for the lowering of heart rate and blood pressure.

Discussion

The explanation of these results is offered on the basis of a verbal rationale. The control by the verbal contingency for those Ss who controlled their physiological responding. Increased consciousness of the frequency of their own anxious thoughts, had given them access to feedback related to thought frequency. It is possible that the feedback information helped the Ss control for fewer thoughts. It is proposed that the indices of heart rate and blood pressure are correlates of the frequency of anxious thoughts, especially so with those Ss who were initially under a fair degree of verbal control (i.e., self-talk or thought control). The nonverbal or natural contingencies, in this case, contingent money, may effect physiological indices in the other Ss as they historically could have learned to be controlled by a contingency that is not verbal in nature. I.e., what these Ss do is more likely to be under control of a natural contingency than under verbal control.

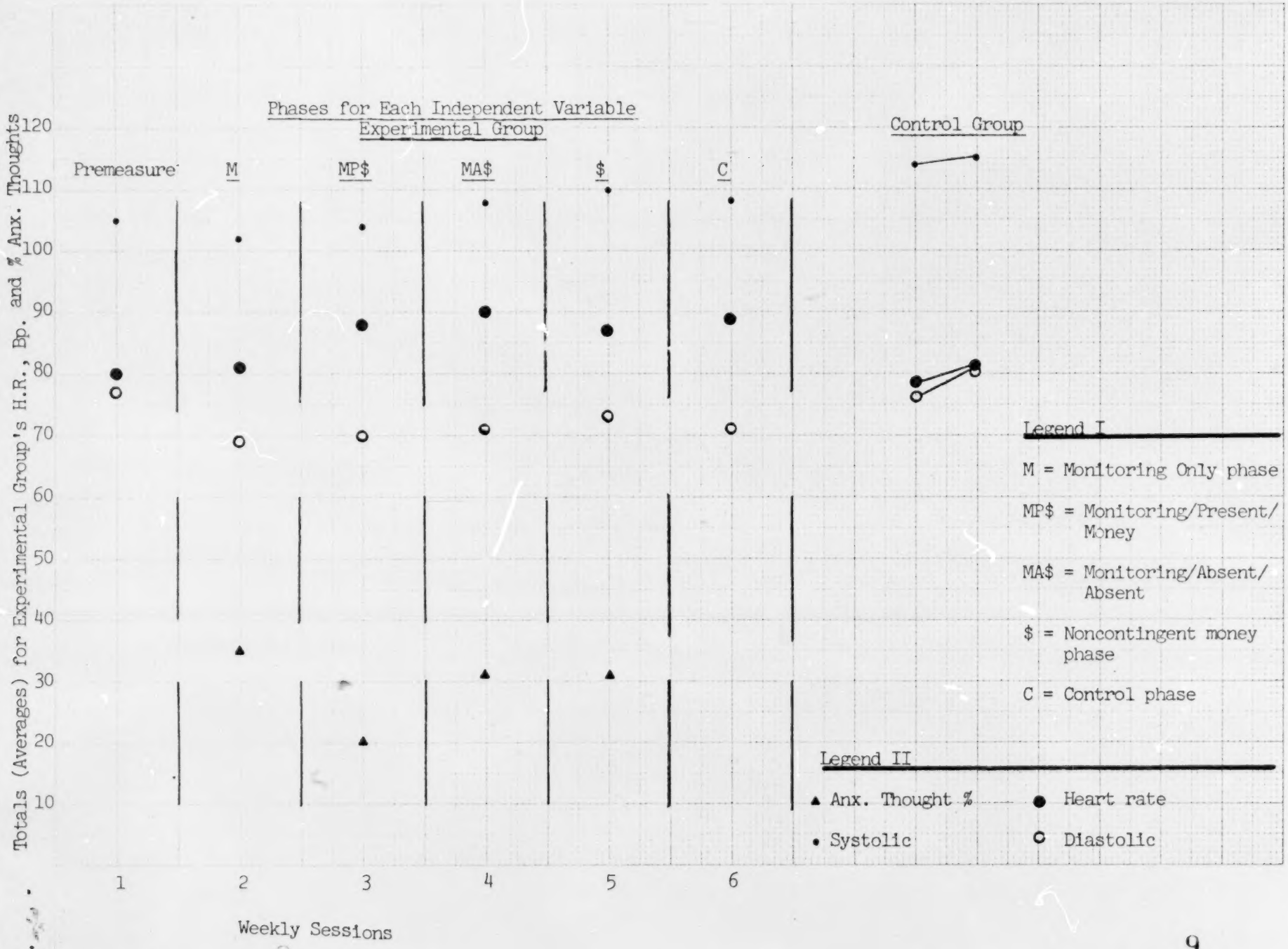
Changes in the Ss conscious component (i.e., frequency of anxious thoughts) may not necessarily be related to changes in physiological measures as some level of awareness is necessary for feedback. However, one could extrapolate and say that people who, for whatever reason, begin having anxious thoughts may, if not under conscious verbal control (i.e., feedback control) and/or without a positive productive consequence for decreasing their thoughts, could, in all probability, lower their threshold

for detection of physiological indices of anxiety and thus becomes better detectors of autonomic increases. It is likely that these are people who are quick to avoid whatever they associate in the environment as causing their anxious feeling (i.e., autonomic increases).

Lazarus comments on (1976, p.53) the correlation between self-informing Ss (those who talk to themselves about the why of their own responses) and emotionality. It is of interest that the self-informing Ss were those Ss who were excluded from the Schachter and Singer study (1964). Those were the Ss who were epinephrine-uninformed Ss but who on a post-experimental questionnaire believed some of their bodily reactions were drug induced. It also was not determined when the self-informing Ss attributed their physical feeling to drugs.

Schachter and Singer (p.54) feel that both detection of the physiological increases by the S and certain thoughts that labeled the emotional quality of the physical increases are necessary. That is to say modifications in consciousness ("cognitives") and the frequency of the detections of physical arousal would produce alteration of experienced affect. Valins and Ray (1967) note that the self perceptive process is the crucial mechanism underlying systematic desensitization.

This study tends to support the hypothesis that modifying "cognitions" in the form of self-verbalizations can result in changes in autonomic measures for Ss under verbal control.





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